a1 amd'd.

is not a pure longitudinal or bending mode of the resonator but is a combination of both pure longitudinal motion and pure bending motion components, wherein the piezoelectric element is held in compression by walls of the resonator that are stressed past their yield point, during operation of the system.

a2

27. (Once Amended) A vibratory system for moving a driven element, the vibratory system excluding the driven element and comprising: a vibratory element having a driving element comprising one of a piezoelectric element and a magnetorestrictive element in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element during use of the vibratory system; a resilient element having one end connected to a base and an opposing end connected to the vibratory element to resiliently urge the selected contacting portion against the driven element during use of the vibratory system, the vibratory element and the resilient element being configured to cooperate to cause the selected contacting portion to move in a first elliptical motion when the vibratory element is excited to simultaneously resonate in at least two vibration modes by a first signal at a first frequency provided to the driving element, the elliptical motion occurring without engagement with the driven element, the motion being of sufficient amplitude to move the driven element during operation of the system, first elliptical motion having a major axis inclined at an angle β_1 with respect to a tangent along a direction of motion of a driven element at the selected contacting portion, with the angle β_1 being between about 5-85 degrees when the selected contacting portion is drivingly engaging the driven element during operation of the system.

a3

35. (Once Amended) A vibratory system for moving an object, comprising: a driven element having an engaging portion thereon and mounted on a support, the driven element being movable in at least a first direction; a vibratory element having a driving element that directly converts electrical energy into physical motion, the driving element being in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element; a resilient element having one end connected to a base and an opposing end connected to one of the vibratory element or the support for the driven element in order to resiliently maintain the selected contacting portion and the engaging portion of the driven element in sufficient contact during operation of the system to move the driven element in the predetermined manner; wherein the vibratory element and the resilient element are configured to

a3 cancel

cooperate to cause the selected contacting portion to move in a first elliptical motion when the vibratory element is excited to simultaneously resonate in at least two vibration modes by a first signal at a first frequency provided to the driving element, the motion being sufficient to move the driven element in the predetermined manner, and wherein at least one of the vibratory element and resilient element is configured to cause the selected contacting portion to move in a second elliptical motion when excited to simultaneously resonate in at least two vibration modes by a second signal at a second frequency differing from the first frequency by at least 1 kHz applied to the driving element so as to cause a different motion of the driven element than occurring with the first frequency.

a4 cont.

47. (Once Amended) A vibratory system having at least one source of vibration drivingly connected to vibrate a resonator to amplify the vibration, the resonator having a selected contacting portion located to be engaged with a driven element to move the driven element in at least a predetermined direction, the vibratory system comprising: a configuration of resonator and driven element that cooperate to cause the selected contacting portion to move in a first elliptical path when excited by a first electrical signal, the elliptical path having a major axis and minor axis, the major axis being inclined at an angle β_1 with respect to a tangent to the driven element at the selected contacting portion in the direction of motion of the driven element, the angle β_1 being between about 5-85 degrees; and

wherein the selected contacting portion moves in a second elliptical path when excited by a second electrical signal sufficient to cause a second motion of the selected contacting portion, the second elliptical path having a major axis and minor axis, the major axis being inclined at an angle β_2 with respect to a tangent to the driven element at the selected contacting portion and in the direction of motion of the driven element, the angle β_2 being between about 5-85 degrees.

49. (Once Amended) The vibration system of claim 47, wherein the angle β_1 is between about 15-25 degrees or 65-75 degrees.

50. (Once Amended) The vibration system of claim 47, wherein the angle β_2 is between about 15-25 degrees or 65-75 degrees.

51. (Once Amended) The vibratory system of claim 47, wherein the ratio of one of the major and minor axis of one of the first and second ellipses is in the range of about 3:1 to 150:1.

52. (Once Amended) The vibratory element of claim 47, wherein the source of vibration

comprises a single piezoelectric element.

a4 cncl'd. 53. (Once Amended) The vibratory element of claim 47, wherein the source of vibration comprises a plurality of piezoelectric elements each connected to different portions of the resonator.

54. (Once Amended) The vibratory element of claim 47, wherein the source of vibration is contained in an opening in the resonator, and wherein the opening is defined by at least two opposing sidewalls that are curved.

55. (Once Amended) The vibratory element of claim 47, wherein the source of vibration comprises at least one piezoelectric element contained in an opening in the resonator, and wherein the opening is defined by at least two opposing sidewalls that are curved and stressed beyond their elastic limit while placing the at least one piezoelectric element in compression.

56. (Once Amended) The vibratory element of claim 47, further comprising a resilient support connected to the vibratory element.

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a5 cnt. 75. (Once Amended) A vibratory component for moving a driven element in at least two directions, the vibratory component comprising: a vibration source mounted to a resonator to form a vibrating element; the vibrating element having a selected contacting portion located to engage the driven element during use, the selected contacting portion moving in a first elliptical path having a major axis and minor axis when the vibration source is excited by a first electrical signal to produce at least two vibration modes that are superimposed to create the first elliptical path and move the selected contacting portion a predetermined distance in a first direction, the selected contacting portion moving in a second elliptical path having a major axis and minor axis when the vibration source is excited by a second electrical signal to produce at least two vibration modes that are superimposed to create the second elliptical path and move the selected contacting portion a predetermined distance in a second direction, at least one of the vibration modes is other than a pure longitudinal mode and other than a pure bending mode, the first and second elliptical motions each having a major axis and minor axis, at least one of the axis of the first and second elliptical motions being alignable with the driven element during use sufficiently to move the driven element during use in two different motions, the second electrical signal differing from the first electrical signal by about 200 Hz or more on either side of the first

a5 cncl'd.

electrical signal, the vibratory component further comprising a resilient element connected to the vibratory element and being used to achieve at least one of the first and second elliptical motions.

77. (Once Amended) The vibratory component of claim 75, further comprising the driven element and wherein the selected contacting portion is resiliently urged by the resilient element against the driven element.

78. (Once Amended) The vibratory component of claim 75, wherein the source of vibration is a piezoelectric element.

79. (Once Amended) The vibratory component of claim 77, wherein the first and second frequencies differ by 2.5 kHz, or more.

80. (Once Amended) A vibratory system for moving a driven element, comprising: a driven element moving in a first and second direction; a vibratory element in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element during use of the vibratory system to move the driven element in a first and second direction, the vibratory element moving the selected contacting portion in a first and second elliptical paths each having a major and minor axis, at least one of the major and minor axes not coinciding with the direction of motion resulting from the elliptical path with which the axis is associated, the vibrating element resonating when excited by a first signal having a first frequency to cause the first elliptical path to move the driven element in the first direction, and further resonating when excited by a second signal having a second frequency to cause the second elliptical path to move the driven element in the second direction, each signal being communicated to the vibratory element through the same electrical connection to the vibratory element, wherein the resonator has a longitudinal axis and the vibratory element has a longitudinal axis, and said axes are parallel.

a6 cnt.

118. (Once Amended) A vibratory system for moving a driven element, comprising:

a vibratory element having a source of vibration that converts electrical energy directly to physical motion, the vibratory element having a predominant axis and having a selected contacting portion located to be engaged with the driven element at an angle α selected to move the driven element along a driven path during use, wherein the vibratory element is excited with a first electrical signal to vibrate at a first frequency in a first vibration mode having sufficient motion along a first axis that the selected contacting portion moves along a first path to cause the

driven element to move in a first direction, at least one of a resonator for the vibrating element and a resilient mounting system for the vibrating element being provided and configured to achieve the first path; exciting the vibratory element with a second electrical signal to vibrate at a second frequency in a second vibration mode having sufficient motion that the selected contacting portion moves along a second path to move the driven element in a second direction, at least one of the resonator and resilient mounting system for the vibrating element being provided and configured to achieve the second path.

119. (Once Amended) The vibratory system of claim 118, wherein the vibratory element comprises a piezoelectric source of vibration.

120. (Once Amended) The vibratory system of claim 118, wherein at least one of the first and second paths comprises an elliptical path having an aspect ratio of over 30:1.

121. (Once Amended) The vibratory system of claim 118, wherein one of the first and second paths comprises an elliptical path having an aspect ratio of over 30:1.

122. (Once Amended) The vibratory system of claim 118, wherein one of the first and second paths comprises an elliptical path having an aspect ratio of under 30:1.

123. (Once Amended) The vibratory system of claim 118, wherein one of the first and second paths comprises a purely longitudinal motion along the predominant axis.

Please add the following new claims:

127. (New) A vibratory system for moving a driven element in a first and second direction, comprising:

a vibratory element in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element during use of the vibratory system to move the driven element in the first and second direction, the vibratory element moving the selected contacting portion in a first and second elliptical paths each having a major and minor axis, at least one of the major and minor axes not coinciding with the direction of motion resulting from the elliptical path with which the axis is associated, the vibrating element resonating when excited by a first signal having a first frequency to cause the first elliptical path to move the driven element in the first direction, and further resonating when excited by a second signal having a second frequency to cause the second elliptical path to move the driven element

a7 cont.

in the second direction, each signal being communicated to the vibratory element through the same electrical connection to the vibratory element, the resonator having a longitudinal axis that is inclined at an angle α. to a tangent to the driven element in the first direction at the selected contacting portion, the angle α being between about 10 and 80 degrees when the selected contacting portion is drivingly engaging the driven element.

128. (New) The vibratory system of claim 127, further comprising a resilient element having one end connected to a base and an opposing end connected to the vibratory element to resiliently urge the selected contacting portion against the driven element during use of the vibratory system.

129. (New) The vibratory system of Claim 127, wherein the vibratory element comprises a piezoelectric element.

130. (New) The vibratory system of Claim 127, wherein the resonator comprises an elongated member having an opening defined by at least two opposing sidewalls, and wherein the opening further includes two opposing end walls on the longitudinal axis, the vibration element being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the vibration element into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the vibration element into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

131. (New) The vibratory system of Claim 130, wherein the sidewalls are stressed beyond their elastic limit to hold the vibration source in compression.

132. (New) The vibratory system of Claim 80, wherein the resonator comprises an elongated member having an opening defined by at least two opposing sidewalls, and wherein the opening further includes two opposing end walls on the longitudinal axis, the vibration element being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the vibration element into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the vibration element into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

133. (New) The vibratory system of claim 132, wherein the sidewalls are stressed beyond their elastic limit to hold the vibration source in compression.

134. (New) The vibratory system of Claim 54, wherein the resonator comprises an elongated member having a longitudinal axis, and wherein the opening further includes two opposing end

a7 cont.

walls on the longitudinal axis, the source of vibration being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

135. (New) The vibratory element of Claim 61, wherein the resonator comprises an elongated member having a longitudinal axis and further having an opening defined by at least two opposing sidewalls, and wherein the opening further includes two opposing end walls on the longitudinal axis, the piezoelectric element being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the piezoelectric element into

a7 cont.

the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the piezoelectric element into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

136. (New) The vibratory system of Claim 74, wherein the resonator comprises an elongated member having a longitudinal axis and further having an opening defined by at least two opposing sidewalls, and wherein the opening further includes two opposing end walls on the longitudinal axis, the piezoelectric element being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the piezoelectric element into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the piezoelectric element into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

a7 cont.

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

137. (New) The vibratory system of Claim 118, wherein the resonator comprises an elongated member having a longitudinal axis and further having an opening defined by at least two opposing sidewalls, and wherein the opening further includes two opposing end walls on the longitudinal axis, the source of vibration being held in compression under a defined preload by said opposing end walls, and wherein the resonator further comprises:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

138. (New) A vibratory component for use with a vibratory system to move a driven element, the vibratory component having a source of vibration mounted to a resonator to form a vibrating element, the resonator comprising:

a selected contacting portion located to engage the driven element during use;

an elongated member having a longitudinal axis;

an opening defined by at least two opposing sidewalls, the opening further including two opposing end walls on the longitudinal axis, the source of vibration being held in compression under a defined preload by said opposing end walls;

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely include said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the source of vibration into the opening and spaced no further apart than needed to completely embrace said second end wall and any shaped surface leading to said second end wall;

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same; and

wherein the vibratory component vibrates in a first mode in the plane spanned by the first and second axes when the source of vibration is excited by a first electrical signal with a first frequency, said mode being neither a pure bending nor a pure longitudinal mode of the vibratory component, wherein the resulting motion of the contacting portion has a sufficient amplitude to move the driven element in a first direction when engaged during use of the vibratory component.

139. (New) The vibratory component of Claim 138, wherein the vibratory component vibrates in a second mode in the plane spanned by the first and second axes when the source of vibration is excited by a second electrical signal with a second frequency, wherein the resulting motion of the contacting portion has a sufficient amplitude to move the driven element in a second direction when engaged during use of the vibratory component.

a7 cont.

140. (New) The vibratory component of Claim 138, wherein the source of vibration comprises at least one piezoelectric element contained in an opening in the resonator, and wherein the opening is defined by at least two opposing sidewalls that are curved and stressed beyond their elastic limit while placing the at least one piezoelectric element in compression.

141. (New) The vibratory component of Claim 138, wherein the source of vibration comprises an elongated piezoelectric element having a longitudinal axis, wherein said longitudinal axis is parallel to the longitudinal axis of the resonator.

142. (New) The vibratory component of Claim 139, wherein the first and second frequencies differ by 2.5 kHz, or more.

143. (New) The vibratory component of Claim 138, further comprising a resilient element connected to the vibrating element for mounting the vibrating element to a base, the resilient element being configured to resiliently urge the contacting portion against the driven element during use of the vibratory component, the resilient element being further configured to participate in the vibrations of the vibratory component.

144. (New) A vibratory system for moving a driven element, the vibratory system excluding the driven element and comprising:

a vibratory element having a driving element comprising a piezoelectric element in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element during use of the vibratory system;

a resilient element having one end connected to a base and an opposing end connected to the vibratory element to resiliently urge the selected contacting portion against the driven element during use of the vibratory system, at least one of the vibratory element and resilient element being configured to cause the selected contacting portion to move in a first motion when the vibratory element is excited by a first signal at a first frequency provided to the driving element, the motion being of sufficient amplitude to move the driven element during operation of the system; and

wherein the resonator has a plurality of sidewalls defining a recess in which the piezoelectric element is held in compression, the sidewalls being stressed past their yield strength.

145. (New) The vibratory system of claim 144, wherein two opposing sidewalls are curved.

a7 cont.

146. (New) The vibratory system of claim 144, wherein the vibratory element is configured to cause the selected contacting portion to move in a second motion when excited by a second signal at a second frequency applied to the piezoelectric element so as to cause a different direction of motion of the driven element than with the first frequency.

147. (New) The vibratory system of claim 144, wherein the resilient element is configured to cause the selected contacting portion to move in a second motion when excited by a second signal at a second frequency applied to the piezoelectric element so as to cause a different direction of motion of the driven element than with the first frequency.

148. (New) A vibratory system for moving an object, comprising:

a driven element having an engaging portion thereon and mounted on a support, the driven element being movable in at least a first direction; a vibratory element having a driving element that directly converts electrical energy into physical motion, the driving element being in driving communication with a resonator that has a selected contacting portion positioned to drivingly engage the driven element;

a resilient element having one end connected to a base and an opposing end connected to one of the vibratory element or the support for the driven element in order to resiliently maintain the selected contacting portion and the engaging portion of the driven element in sufficient contact during operation of the system to move the driven element in the predetermined manner;

wherein the vibratory element and the resilient element are configured to cooperate to cause the selected contacting portion to move in a first motion when the vibratory element is excited by a first signal at a first frequency provided to the driving element, the motion being sufficient to move the driven element in a first direction, and wherein at least one of the vibratory element and resilient element is configured to cause the selected contacting portion to move in a second motion when excited by a second signal at a second frequency so as to cause of the driven element in a second direction, the second and the first frequency differing by at least 2.5kHz, and wherein the resonator has a plurality of sidewalls defining a recess in which the piezoelectric element is held in compression, the sidewalls being stressed past their yield strength.

149. (New) The vibratory system of claim 148, wherein the driving element is a piezoelectric element and both the first and second signals are communicated to the piezoelectric element

through the same electrical connection to the piezoelectric element.

a7 cont.

150. (New) The vibratory system of claim 148, wherein two opposing sidewalls are curved.

151. (New) A vibratory system for moving a driven element, comprising: a vibratory element having a piezoelectric element in driving communication with a resonator that has a selected contacting portion located to engage the driven element during use of the system;

wherein the piezoelectric element and resonator are configured to resonate in at least a first vibration mode when the piezoelectric element is excited by a first signal at a first frequency, the resulting motion of the selected contacting portion being of sufficient amplitude to move the driven element in a first direction when the driven element and selected contacting portion are maintained in sufficient contact to achieve a desired motion of the driven element, the first vibration mode being selected so that it is not a pure longitudinal or bending mode of the resonator but is a combination of both pure longitudinal motion and pure bending motion components;

wherein the piezoelectric element and resonator are configured to resonate in at least a second vibration mode when the piezoelectric element is excited by a second signal at a second frequency, the resulting motion of the selected contacting portion being of sufficient amplitude to move the driven element in a second direction when the driven element and selected contacting portion are maintained in sufficient contact to achieve a desired motion of the driven element, the second vibration mode being selected so that it is not a pure longitudinal or bending mode of the resonator but is a combination of both pure longitudinal motion and pure bending motion components; and

wherein the first and second modes are different, the first and second frequencies differ by at least 2.5kHz, and the first and second directions are opposite.

152. (New) The vibratory system of Claim 151, wherein the resonator comprises an elongated member having a longitudinal axis, and wherein the resonator has an opening defined by at least two opposing sidewalls, the opening including two opposing end walls on the longitudinal axis, the piezoelectric element being held in compression under a defined preload by said opposing end walls, and wherein the resonator further includes:

a first section extending between a first and a second plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the selected contacting portion, and spaced no further apart than needed to completely include the selected contacting portion;

a second section extending between a third and a fourth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the first end wall and any shaped surface leading to the first end wall to help press-fit the piezoelectric element into the opening and spaced no further apart than needed to completely embrace said first end wall and said shaped surface;

a third section extending between a fifth and a sixth plane each of which is perpendicular to the longitudinal axis and spaced apart to completely include the second end wall and any shaped surface leading to the second end wall to help press-fit the piezoelectric element into the opening and spaced no further apart than needed to completely embrace said second end wall and said shaped surface leading to the second end wall; and

wherein the resonator has a second axis perpendicular to the longitudinal axis such that, excluding the first, second and third sections, every cross-section of the resonator perpendicular to the second axis is the same.

153. (New) The vibratory system of Claim 152, wherein the opposing sidewalls are stressed beyond their elastic limit to hold the piezoelectric element in compression.

154. (New) The vibratory system of Claim 152, wherein the piezoelectric element is press-fit into the opening.

155. (New) The vibratory system of Claim 151, wherein the piezoelectric element is held in compression under a defined preload by walls of the resonator that are stressed past their yield point.

156. (New) The vibratory system of Claim 118, wherein the first and second directions are opposite each other.

REMARKS

In response to the restriction requirement, the Applicants elect Group 1, Claims 1-85. The non-elected claims are either deleted or amended to fall within the elected group of claims.

New claims are added to further define the invention and those new claims are believed to fall within the category of Group 1. No new matter is added.

CONCLUSION

Attached hereto is marked-up version of the changes made to the claims by the current amendment. The attached is captioned "Version with Markings to Show Changes Made."

The Examiner is urged to contact the undersigned if there is any question on the claims or any other matter that would advance the prosecution of this application.

Respectfully submitted,

Dated: 10/7/02

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